

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for arranging a polymer molecule ~~such as a biomolecule~~ on a support, the method comprising the following steps:
 - providing a substrate having a surface;
 - providing a surface layer on said surface of the substrate, said substrate and said surface layer providing a support;
 - placing a polymer molecule on said surface layer in a first position, wherein the polymer molecule is a biomolecule; and
 - adsorbing the polymer molecule on said surface layer providing an adsorbed state of the polymer molecule, the polymer molecule having a first conformation on said surface layer; wherein said surface layer is configured to adjust predefined molecular interaction between the polymer molecule and said support to allow fixing of the first conformation of said polymer molecule, and in said adsorbed state of the polymer molecule, dislocating at least part of the polymer molecule across said surface layer relative to said support by an external force.
2. (Previously Presented) The method according to claim 1, wherein the method comprises a step for subsequently fixing the polymer molecule on the surface layer.
3. (Previously Presented) The method according to claim 1, wherein the method comprises a step of dislocating in said adsorbed state the polymer molecule across said surface layer by manipulation of said first conformation of the polymer molecule to a second conformation different from the first conformation of the polymer molecule, and fixing the polymer molecule on the surface layer in said second conformation by means of said molecular interaction between the polymer molecule and said support.

4. (Previously Presented) The method according to claim 1, wherein the method comprises steps of dislocating the polymer molecule in said adsorbed state across said surface layer by changing said first position of the polymer molecule to a second position different from the first position on the surface layer, and fixing the polymer molecule on said surface layer in said second position by means of said predefined molecular interaction between the polymer molecule and said support.

5. (Previously Presented) The method according to claim 1, the method further comprising a step of configuring said surface layer to provide a force required for dislocating the polymer molecule across the surface layer which is smaller than about 2nN in dependence on the polymer molecule and said substrate.

6. (Previously Presented) The method according to claim 1, wherein the step of providing said surface layer on said surface of said substrate comprises a step of forming domains and/or axes and/or further binding sites in said surface layer.

7. (Previously Presented) The method according to claim 6, wherein said external force comprises an attractive force provided at least partly by said domains and/or axes and/or further binding sites in said surface layer.

8. (Previously Presented) The method according to claim 1, wherein said surface layer is self assembling.

9. (Previously Presented) The method according to claim 1, wherein said step for providing said surface layer on said surface of said substrate comprises a step for using one or more of the following methods:

- a chemical method with appearance of new chemical functionalities covalently bound to said surface of said substrate;
- plasma-chemical method;
- thin or ultra-thin coating applied by surface adsorption method;
- thin or ultra-thin spin-coating;
- thin or ultra-thin coating applied by vacuum deposition method;
- a Langmuir-Blodgett technique or a self organized film technology;
- Layer-by-Layer polyelectrolyte assembling; and
- 2D crystallization of low-, middle- or high molecular weight substances or their complexes on the surface.

10. (Previously Presented) The method according to claim 1, wherein the method further comprises a step for altering said predefined molecular interaction between the polymer molecule and said support.

11. (Previously Presented) The method according to claim 10, wherein said step for altering said predefined molecular interaction comprises a step for placing said surface layer with the polymer molecule provided thereon into a liquid medium.

12. (Previously Presented) The method according to claim 10, wherein said step for altering said predefined molecular interaction comprises a step for drying said surface layer with the polymer molecule provided thereon.

13. (Previously Presented) The method according to claim 10, wherein said step for altering said predefined molecular interaction comprises a step for changing a temperature of said surface layer.

14. (Previously Presented) The method according to claim 10, wherein said step for altering said predefined molecular interaction comprises a step for applying an electric or/and magnetic field oriented perpendicular or at certain angle with respect to said surface of said support.

15. (Previously Presented) The method according to claim 10, wherein said step for altering said predefined molecular interaction comprises a step for exciting the polymer by light.

16. (Previously Presented) The method according to claim 1, wherein said external force is provided by using one of the following fields: electrical field, magnetic field, optical field and mechanical field, or any combination thereof.

17. (Previously Presented) The method according to claim 1, wherein a scanning probe microscope (SPM) is used for applying said external force.

18. (Currently Amended) The method according to claim 1, wherein the polymer molecule comprises a polynucleotide ~~such as DNA or RNA~~, a polypeptide ~~such as protein, an antibody or antigen-antibody system~~, or a polysaccharide, ~~or a desired mixture of biomolecules~~.

19. (Previously Presented) The method according to claim 1, wherein said surface layer comprises an inorganic polymer, an organic polymer, an organic low molecular substance, a metal, a metal oxide, a sulfide, a semiconductor, or an optical element, or any combination thereof.

20. (Previously Presented) The method according to claim 1, wherein said substrate is atomically flat.

21. (Previously Presented) The method according to claim 1, wherein said substrate comprises glass, surface oxidized silicon, gold, molybdenum sulfide, highly oriented pyrolytic graphite (HOPG) or mica.

22. (Previously Presented) The method according to claim 1, wherein the method comprises a step for anchoring at least one end of the polymer molecule to said support.

23. (Previously Presented) The method according to claim 1, wherein the method comprises a step for anchoring at least one end of the polymer molecule to be arranged to a fiber, a micro-particle or a nano-particle.

24-27. (Cancelled).

28. (New) The method according to claim 1, wherein the polymer molecule is a co-polymer.

29. (New) The method according to claim 1, wherein the polymer molecule comprises DNA or RNA.

30. (New) The method according to claim 1, wherein the polymer molecule comprises a protein.

31. (New) The method according to claim 1, wherein the polymer molecule comprises an antibody or antigen-antibody system.